

# 4.0

## URBAN PATHWAYS

## **4.1 PROPOSED SYSTEMS AND PROGRAMS**

The Urban Pathways System will consist of a network of bicycle and pedestrian routes located to achieve the following objectives:

- Linking residences with schools and recreational areas and facilities
- Linking residences with other residential areas
- Linking residences with commercial areas
- Enhancing the convenience and appeal of bicycling and walking
- Improving bicyclist and pedestrian safety
- Increasing recreational opportunities for bicyclists, walkers, joggers and skaters
- Providing continuation of the Red Rock Pathways corridor
- Implementing the Verde Valley Regional Transportation Study

## **4.2 RECOMMENDATIONS**

### **4.2.1 ORGANIZATIONAL RECOMMENDATIONS**

The City should provide continuing attention to bicycle and pedestrian route issues and concerns. The City should establish a permanent standing Trails & Urban Pathways Committee and assign a City employee to carry on the work recommended in this plan. The Committee and staff member's job should include:

- Advocate bicycling and walking as legitimate forms of transportation and recreation.
- Act as liaison with the Community Development Department, Engineering Department, Parks & Recreation Department, schools, bicycle shops, volunteer organizations and citizens interested in bicycle and pedestrian issues.
- Work with the Community Development Department to insure urban pathways are designed and installed according to adopted City plans and standards for both public and private development projects.

- Work with City Engineering and Community Development staff, ADOT and others to ensure that maintenance and hazard reporting are properly addressed.
- Develop adult and children's education programs focusing on bicycle safety. Also encourage the involvement of local service organizations and clubs, businesses, and school organizations in implementing the programs.
- Write grant proposals for a variety of urban pathways related facilities and programs, along with searching for other sources of outside funding for urban pathways advocacy and safety programs.
- Oversee and provide direction for urban pathways program expenditures.
- Encourage the Trails & Urban Pathways Committee to organize and advertise a variety of bicycle related events throughout the City to promote greater use and safe operation of bicycles.
- Develop and distribute a detailed trails and urban pathways map. Seek financial assistance from local businesses to underwrite the costs.
- Work with the Police and Public Works Departments to recommend policies, laws, and regulations to manage the use of urban pathways in Sedona.

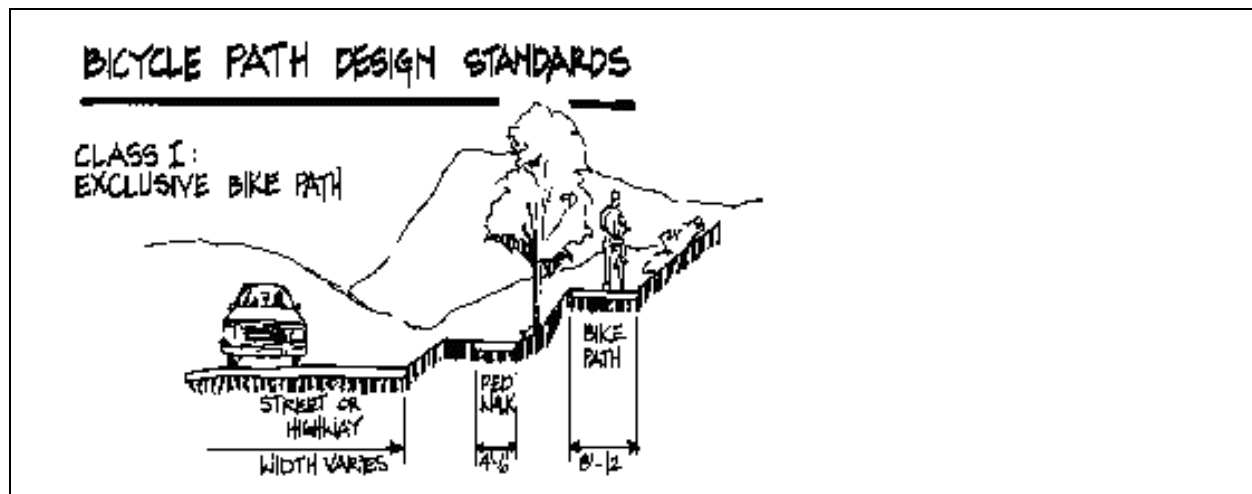
#### 4.2.2 URBAN PATHWAYS FACILITIES RECOMMENDATIONS

The Sedona Community Plan recommends the City develop a circulation system that provides a safer and more friendly environment for bicyclists and pedestrians.

A well-designed system will reduce the incidence of bicycle related accidents, encourage bicycling and walking as a means of transportation and recreation, contribute to energy conservation and better air quality, and enhance the quality of life in Sedona. As an urban amenity, the system will provide an incentive to promote bicycle and pedestrian-related tourism.

Several different types of routes are recommended, some solely for use by bicyclists, some by pedestrians, and others jointly. Below are definitions of the different pathways classifications adopted from: *Manual on Uniform Traffic Control Devices*, 1988 Edition.

- **Bikeway** - Any road, street, path, or way which in some manner is designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.



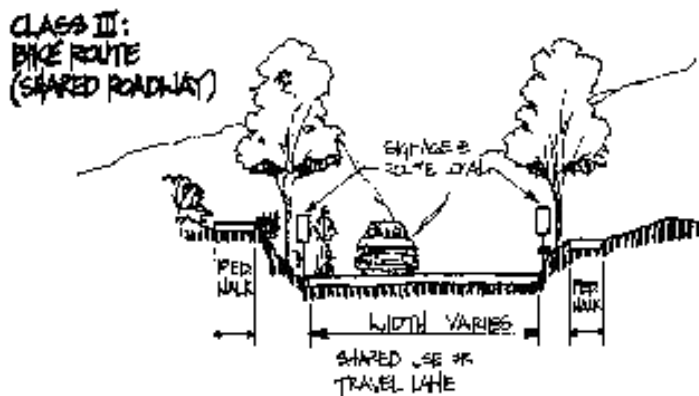
Class I Exclusive Bike Path

- **CLASS I (Bicycles/Pedestrian Trail or Path)** - A separate trail or path from which motor vehicles are prohibited and which is for the exclusive use of bicycles or the shared use of bicycles and pedestrians. Where such trail or path forms a part of a highway, it is separated from the roadway and vehicular traffic by an open space barrier.



Class II Delineated Bike Lane

- **CLASS II (Delineated Bicycles Lane)** - A portion of a roadway or shoulder which has been delineated for use by bicyclists. It is distinguished from the portion of the roadway for motor vehicle travel by a paint stripe, curb, or other similar device.



Class III Bike Route (Shared Roadway)

- **CLASS III (Shared Roadway)** - A roadway which is officially designated and marked as a bicycle route, but which is open to motor vehicle travel and upon which no bicycle lane is designated.
- **Bicycle Route** - A system of bikeways designated by appropriate route markers and by the jurisdiction having authority.

#### 4.2.3 GENERAL RECOMMENDATIONS

- Bicycles are a legitimate mode of transportation and should be allowed on all streets in Sedona. Bicyclists should be allowed to use the most convenient routes including all public streets unless there is an adjacent designated trail or path.
- The City should encourage new public and private development to incorporate bicycle and pedestrian facilities into construction plans where they are specifically identified in this document and other community development plans.
- The City should establish and support education, safety, enforcement and advocacy programs as necessary components of the urban pathways plan.
- The City should adopt the urban pathways system described in this plan and accompanying maps as the long-range urban pathways plan for Sedona. Implementation of the plan will require a coordinated commitment for the establishment of an ongoing permanent program for the development and maintenance of bicycle and pedestrian facilities in Sedona.
- The City should ensure that all City improvements incorporate the development of bicycling and pedestrian facilities. The City should support and encourage the State and other agencies to provide bicycling and pedestrian facilities.

## 4.2.4 SPECIFIC RECOMMENDATIONS

Completion of the urban pathways system will provide a safe environment for bicyclists and pedestrians for transportation and recreation. The plan intends to place bicycle transportation on more equal ground with motor vehicles while providing convenience and function for pedestrians.

The following specific recommendations should not be considered as a prioritized list. Scheduling of urban pathways projects should be flexible so as to allow coordination with related public and private development.

?A detailed illustration of the proposed routes can be found on the Trails and Urban Pathways Plan Map located in the front pocket of this report's cover.

### 1. RED ROCK PATHWAYS - MAIN PATHWAYS LOOP

Red Rock Pathways is a Kiwanis International sponsored project that has received support from the U.S. Forest Service, State of Arizona, Yavapai and Coconino Counties, and the City of Sedona. The heart of the Red Rock Pathways vision is a central thirty-mile loop connecting the City of Sedona via Highway 89A to the Red Rock State Park, and then on via Verde Valley School Road to the Village of Oak Creek. From the Village, the loop parallels Highway 179 back into Sedona and Highway 89A at the "Y".

The City's Urban Pathways Plan incorporates the Red Rock Pathways Plan via the following segments:

- a. **Chapel to the "Y" Section:** The path follows Highway 179 right-of-way from the City's southern incorporated boundaries to Highway 89A. Wherever possible, it will be separated from the roadway. In some cases, it will be necessary to join the highway as a striped bike lane on each side.

In order to move bicycle traffic off Highway 179, Justin Circle, Badger Drive, Bell Rock Drive, Susan Way, and Acacia Drive, all public streets should be designated as shared roadways. Further design of this route must be coordinated with ADOT planning for Highway 179 and future UpTown/Oak Creek Area specific plans.

- b. **Highway 89A through West Sedona:** The route follows the highway either as a striped bike lane or as an expanded, separate pedestrian/bicycle path. This will be used as a major commuting route, allowing easy access to businesses and shopping along Highway 89A. Further design should be coordinated with the next phase of the West Sedona Corridor Specific Area Plan.

- c. **High School to Lower Red Rock Loop Road:** This segment leaves Highway 89A at the Upper Red Rock Loop Road intersection and follows the right-of-way in front of the high school on the south side of the roadway. It travels along the north side of Schuerman Mountain on an old road alignment above 89A. Two alternate connections to Lower Red Rock Loop Road are currently being assessed by the USFS: one, a ramp down the last few hundred yards in the right-of-way to the intersection, and the other follows a rock bench leading away from the intersection and then winds down to the Lower Red Rock Loop Road. This section will require City, USFS, and Yavapai County coordination for further refinement and implementation.
- d. **High School to Upper Red Rock Loop Road:** This segment travels south from the highway intersection and should be developed as striped bicycle lanes on both sides of the Upper Red Rock Loop Road. The Arizona State Parks Department and ADOT are conducting a study of this roadway and considering roadway alignment and improvement options. The City has made its recommendations to accommodate bicycles along this route.

## 2. ALTERNATIVES TO HIGHWAY 89A

The absence of an alternate east-west route forces bicyclists and pedestrians to use Highway 89A as the main route for travel through West Sedona. Many conflicts occur between bicyclists, pedestrians, and motorists along the highway right-of-way. In order to avoid the dangers of riding on the highway, many bicyclists ride on the narrow sidewalks intended for the exclusive use of pedestrians. Increasing highway traffic, the number of driveways along the roadway, and the need for frequent left-turn movements by motorists add to the tensions between motorists, pedestrians, and bicyclists.

- a. **High School to Library:** This route, whether or not incorporated with any future road or constructed as a separate pedestrian/bicycle path, should be located north of the highway. This corridor will also provide access to the Sedona Cultural Park and the Medical Center and provide students and other users alternatives to the highway. A signalled Compactor Road/highway intersection and planned pedestrian overpass will complement this route.
- b. **Dry Creek Road to Coffee Pot Drive:** This route requires extension of Thunder Mountain Road to Dry Creek Road. Additional route development along the Sanborn Road corridor will need to be accomplished in order to accommodate multiple uses.
- c. **Coffee Pot Drive to Soldier Pass Road:** This route creates a vital linkage to the Posse Grounds Park and West Sedona School. The route will also require the acquisition of land through purchase or easement to connect Coffee Pot Drive with Mountain Shadows Drive, and Zane Grey Street with the Posse Grounds Park. Additional development will need to occur in the park in order to create a multiple-use route to Soldier Pass Road.

- d. **Soldier Pass Road to the "Y":** This segment provides an important link between Uptown and West Sedona. Sections of Soldier Pass Road along the park boundaries should be developed for pedestrian and bicycle use. A corridor through the Best Western Motel grounds near the Soldier Pass and highway intersection should be designated for pedestrian and bicycle use. Since a sidewalk exists in the highway intersection should be designated for pedestrian and bicycle use. Since a sidewalk exists in the highway right-of-way, a bicycle-only corridor should be developed between the motel and the "Y".

### 3. HIGHWAY 89A CONNECTIONS

A major component of this plan is connecting residential areas with commercial areas. Because of Sedona's pattern of commercial development along the highway, it is necessary to create a means in which pedestrians and bicyclists can also safely and more conveniently access these areas.

- Recommended routes are illustrated on the Trails and Urban Pathways Plan Map located in the front pocket of this report's cover.
- a. **Dry Creek Road:** While not currently designated as a bike route, Dry Creek Road is a popular roadway for bicyclists. Because motor vehicle traffic will continue to increase, it is important to develop Class II designated bike lanes and sidewalks along this road.
- b. **Thunder Mountain Road-Navajo Drive-Southwest Drive:** Private development off Thunder Mountain Road will create increased pressures for a more direct linkage to the highway. A Class III shared roadway, with sidewalks, is recommended along this route.
- c. **Sanborn-Andante Street:** Because of the narrowness of this corridor, it is recommended that with any future road realignment, a sidewalk be constructed on one side or the other and that bicyclists be discouraged from traveling this route.
- d. **Sanborn-Rodeo Road - Rodeo Road Extension:** This route should be designated for both pedestrian and bicycle use. It is recommended that a Class III shared roadway and sidewalks be constructed in conjunction with any private development occurring along this section.
- e. **Sanborn-Coffee Pot Drive:** While heavily traveled by motorists, pedestrians and bicyclists do not currently have room to safely share the roadway. Future road improvements should include Class II designated bike lanes and sidewalks.



- f. **Soldier Pass Road:** Increasing residential development in the area will produce a much higher volume of motor vehicle traffic. Ideally, this route should be developed as a Class I bicycle/pedestrian path.
- g. **Shelby Drive:** High-density residential development in this area will dramatically increase motor vehicle traffic on the roadway. It is recommended that Class II designated bike lanes with sidewalks be developed along this route.
- h. **Sunset Drive:** A Class III shared roadway and sidewalk is recommended for this route.
- i. **Northview Road:** A Class III shared roadway and sidewalk is recommended for this route.
- j. **Airport Road-Saddle Back Parking Area:** Pedestrian traffic is not recommended on this route. This plan recommends Class II designated bike lanes along this route.
- k. **Jordan Road Corridor:** Two routes are recommended for this area. For pedestrians one sidewalk should run the distance between the highway intersection and parking entrance to Jordan Park. A Class III shared roadway should be signed on Van Deren Road between Forest Road and Navahopi Road. The type III shared roadway should then continue on both sides of Navahopi Road and Jordan Road to a planned USFS trailhead located at the end of Jordan Road.

## 4.3 DESIGN GUIDELINES

It is recommended that the City require all future pedestrian and bicycle facilities be constructed in accordance with the following general engineering guidelines:

- City of Sedona engineering and construction standards and specifications
- Maricopa Association of Governments Uniform Standard Specifications for Public Works Construction (MAG Specs) and Maricopa Association of Governments Uniform Standard Details for Public Works Construction (MAG Details)
- City of Sedona Addenda to the MAG Specifications and Details

The Arizona Bicycle Task Force published the Arizona Bicycle Facilities Planning & Design Guidelines (1988) which sets standards for bicycle facilities construction in Arizona. This is an excellent reference for bicycle facilities and should be adopted by the City.

### **4.3.1 SPECIFIC DESIGN GUIDELINES**

In addition to general engineering guidelines, this plan recommends the following:

- All new construction of City roadways, and improvements to existing roadways, should address bicycle and pedestrian accessibility. Bicycle and pedestrian facilities should be included where appropriate, according to design guidelines.
- On new roadways where traffic speeds are expected to exceed 35 miles per hour, separate bike paths may be safer and more appropriate than on-street lanes. Design guidelines and location criteria (i.e. adequate right-of-way width, traffic volume, intersection and driveway conflicts) should be considered on high-speed streets.
- Construct bike lanes with directional arrows, diamond symbols, and/or words "Bike Lane" painted on the pavement surface. This technique alerts motorists that they are sharing the road with bicyclists. All bike lanes should receive this treatment and be incorporated into the City's traffic engineering standards.
- The installation of an 8-inch to 12-inch "rumble strip" of corrugated pavement along the stripe separating the traffic lane from the bike lane should also be incorporated into the City's traffic engineering standards. The strip alerts motorists and cyclists not to travel in the wrong lane.

### **4.3.2 SIGNAGE AND TRAFFIC SIGNALS**

A consistent system of signage for urban pathways needs to be adhered to. Used to direct, inform, and warn of hazards, signs are an important component of a properly functioning pathways system.

All routes should have signs positioned frequently enough to enable pedestrians and bicyclists to determine whether or not they are on a bicycle route. Continuous routes should be named or otherwise designated for easy identification by cyclists.

Triggering mechanisms should be provided for pedestrians and bicyclists at all signaled intersections. If activation buttons are used, they should be easily accessible to bicyclists. If the pedestrian signal activator button is not readily accessible, a separate one should be provided for bicyclists. The location of the signal activator for bicyclists should be oriented for use from the on-street bicycle lane or route.

## **RECOMMENDATIONS**

- Develop and implement a consistent Citywide system of signs. Utilize the standards set forth by MUTCD, AASHTO, ADOT, ABTF, and City of Sedona Engineering Standards.
- Continuous routes should be named or numbered so that users can easily identify the route they need to reach a destination.
- Signs indicating destinations and major features should show direction and distance.
- Bike lanes and paved paths should use a consistent system of painted surface markings, such as diamond symbols, arrows, and the words "Bike Lane."
- At intersections where the traffic signal must be triggered, provide adequate mechanisms for bicyclists. Activator buttons should be located for easy access from bicycle lanes and routes.

### **4.3.3 BICYCLE PARKING**

The availability of secure parking facilities close to destination points is an important feature of the urban pathways system. Location, convenience, security, availability, and demand are all factors to be considered in choosing sites for these support facilities.

## **RECOMMENDATIONS**

- Bicycle parking should be provided close to destination points, such as schools, public facilities, future transit stops, employment centers, and commercial areas.
- Bicycle parking facilities should be provided in convenient, visible, and secure locations.
- Frame-securing racks, rather than wheel-mounting racks, should be used.
- The City should encourage and provide incentives to develop bicycle parking in commercial developments in addition to required automobile parking.

#### 4.3.4 SURFACE MATERIALS

Around the country, multi-purpose off-road pathways are constructed from many different varieties of materials. The key to constructing a good surface for multiple uses is to provide a high quality of sub-grade and sub-base for the path. The City should prepare its pathways construction specifications standards to ensure that sub-grade, sub-base, drainage, and construction materials meet the demands of the intended uses of each off-road pathway.

There are many surface types available to construct pathways, including granular stone, asphalt, concrete, soil cement, wood chips, and natural surfaces. Surface materials are either soft or hard, defined by the material's ability to absorb or repel moisture. Hard surfaces include soil cement, crushed stone, asphalt, and concrete. Soft surfaces include natural earth, and wood chips.

Hard-surfaced materials are more practical for multiple-use pathways. They are more expensive to purchase and install but require less maintenance and can withstand frequent use. Hard surfaces also accommodate the widest range of pathways uses. The following is a description of hard surfaces, ranging from softest to hardest: (construction costs are based on material and labor costs as of March 1995)

- **Soil Cement** will support most user groups; however, bicyclists will have the greatest impact on the surface. Soil cement costs approximately \$55,000 per mile for a ten-foot-wide trail. The material requires a high level of maintenance.
- **Granular stone** is a popular surface for trails because it accommodates a wide variety of trail users and can be compacted into a firm surface. A variety of stones can be chosen, including limestone, sandstone, and granite. This surface is compatible with the natural environment and complements the aesthetic appeal of surrounding landscapes. It costs approximately \$75,000 per mile to construct a ten-foot-wide granular stone pathway. Maintenance is minimal, although spot repairs and grading are necessary, and stone replenishment is required every five to seven years.

Coconino County and the City of Flagstaff have been experimenting with different mixtures of stones supplemented with binding polymers. The City should monitor the success of these materials and consult with the two agencies when considering construction materials.

- **Asphaltic Concrete** is a very popular surface used in a variety of trails and path-ways settings. It works particularly well on pathways used for bicycling or in-line skating. Asphalt is more expensive than granular stone, approximately \$125,000 per mile for a ten-foot-wide route. It requires minor maintenance, such as crack patching, and has a life expectancy of seven to fifteen years.

### **4.3.5 MAINTENANCE**

Maintenance is essential for safe and enjoyable riding and walking. Urban pathways need to be free from cinders and debris and maintained at an acceptable standard.

#### **RECOMMENDATIONS**

- The City should regularly inspect urban pathways in accordance with a maintenance management plan and make repairs as necessary.
- Snow should be removed from on-street bicycle facilities at the same time as snow removal for automobiles.
- Cinders associated with snow maintenance should be removed from urban pathways as soon as possible.
- Urban pathways should be maintained free of litter and debris.
- Tree branches should be trimmed away from the pathways to ensure safe head room for cyclists and pedestrians. The vertical clearance for cyclists should be eight feet, while the clearance for pedestrians should be seven feet.
- Shrubs and other vegetation should be kept away from routes in a manner that provides for safe sight distances and unobstructed pathway surfaces.
- All dangers should be marked with the proper signage.

### **4.3.6 DRAINAGE GRATES**

Drainage grate inlets and utility covers are potential problems to bicyclists. When a new roadway is designed, all such grates and covers should be kept out of bicyclists' expected paths. On new construction where bicyclists will be permitted, curb inlets should be used wherever possible to completely eliminate exposure of bicyclists to grate inlets.

Parallel bar drainage grate inlets can trap the front wheel of a bicycle, causing loss of steering control. Often, the bar spacing is such that narrow bicycle wheels may drop down into the grates, resulting in serious damage to the bicycle wheel and frame, and/or injury to the bicyclist. These grates should be replaced with bicycle-safe and hydraulically efficient ones. As a temporary solution, steel cross straps of bars can be welded perpendicular to the parallel bars to provide a maximum safe opening between straps.

### **4.3.7 UTILITY TRENCHING**

Excavations in roadways occur on a regular basis both for public utilities and for private development. All excavations in the roadway should be resurfaced smooth and flush with the existing surface.

With most repaving, there is some degree of settling and unevenness along the edge of a patch. Therefore, it is recommended that, when excavations occur within a designated urban pathway, the cut should be the full width of the route so as to avoid an uneven and dangerous surface condition from longitudinal joints and cross-cuts.